that 2 GHz PCS systems will be potentially fungible substitutes for basic exchange services provided by the LECs today.

Historically, LEC market power has allowed the state commissions to use such concepts as "value-of-service" pricing and statewide-averaging for the stated purpose of promoting universal service, particularly in the smaller communities in a state. The pricing patterns put in place under the former regime of high regulatory barriers to entry go a very long way in explaining the entry pattern that has been observed throughout the telecommunications industry at both the federal and state levels. For example, the typical state regulatory pattern of setting rates for basic exchange services is to price business services higher than residential services, even though these two services are essentially identical. Also, where a LEC serves both urban and rural communities, the rates in urban areas tend to be set higher than those in rural areas, even though the actual cost characteristics may be just the opposite. Social pricing mechanisms, no matter how well-intentioned, are not sustainable when prospective new entrants can target those customers or localities which have traditionally been expected to provide higher-than-average levels of contribution.

To the extent that such pricing at the state level has been judged to be "socially beneficial" by the state regulatory bodies, the impact of the FCC's PCS decision on those rate structures must be understood. It is clear to GTE that both access and local exchange rate structures/rate levels must

be changed in order to accommodate PCS. Furthermore, the impact on support mechanisms which the state and federal regulators have put in place and upon which the regulators have relied to promote universal service must be fully understood and appropriately modified or eliminated as a consequence of introducing PCS. In GTE's opinion, these are matters of vital concern to LECs and their customers, as well as to state regulatory authorities. Congress has established, and the Courts have enforced, this country's dual regulatory structure, and concerns of both jurisdictions form our United States telecommunications policy.

The issues that GTE has raised here are far from exhaustive, but are illustrative of those which the regulatory bodies at both the federal and state level must contend. Other issues include inter-company compensation, the carrier common line pool, subscriber line charges, etc. If PCS is truly to generate the benefits it is capable of providing to the public, then those factors inhibiting the development of such competition must be addressed. If the funding and potential support mechanisms are still determined to be desirable for public policy reasons, then a method must be found to address them which does not impose different regulatory barriers to competition on separate parties.

On numerous occasions, GTE and others have called upon this Commission to undertake a comprehensive review of access charge rules. The issues surrounding PCS require that this comprehensive re-examination

of current LEC service and pricing issues now be expanded to include the pricing of local exchange and intrastate service offerings as well prior to allocating spectrum. Pricing of current local exchange and intrastate services is clearly beyond the scope of authority of this Commission by itself and commands that these pricing issues be deferred to a Joint Board for resolution.

c. The Notice ignores significant interconnection issues that should be resolved prior to the implementation of PCS.

Another network integration area worthy of Commission investigation and oversight is the interconnection arrangements between carriers and the associated compensation arrangements. If PCS succeeds to any great extent, many different carriers' networks will be interconnected. This would involve the LECs, the current cellular providers, and three to five PCS providers. Specialized Mobile Radio Service operators, low-earth orbit satellite carriers, IXCs and others will also be involved.

If traffic among and between networks becomes significant, it would appear that some equitable form of access charges or other compensation mechanisms must be established between all interconnected networks.[13]

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[13] The interconnection issue will be further complicated if one or more of the carriers involved is classified as a common carrier and subject to state regulation, and one or more of the carriers is classified as a private carrier who is not subject to state regulation or other common carrier obligations, particularly if any form of reciprocal access charging is contemplated.

The type and amount of such access charges can significantly impact the price, demand, and economics for the services of PCS providers, LECs, and the other interconnected networks. Such access charge arrangements require the involvement of both state and federal regulatory agencies.

2. The Commission needs to assess whether the Notice's goal should be the promotion of innovative telecommunications services rather than inefficient duplication of existing cellular services.

Until the issuance of the Notice, new 2 GHz services had largely been envisioned as microcellular systems, whether derived from CT-2 or personal communications network prototypes. Throughout the Notice, however, is the suggestion that duplication of the existing cellular industry structure and services is a paramount regulatory goal. For example, the Commission notes in its discussion of the appropriate allocation size, that "the cellular service is allocated 50 MHz, with each licensee assigned 25 MHz" and states "we believe that PCS licensees should be assigned a comparable amount of spectrum," NPRM, ¶35. In the context of licensing areas, the comparison is also made, with the Commission stating "PCS service areas should be larger than those initially licensed in cellular," id., ¶60. Finally, in the discussion of power and antenna height limits, the Commission proposes standards "similar to, or possibly greater than, that permitted in 800 MHz cellular systems," id., ¶116. Nowhere, however, does the Commission discuss why duplication of cellular is an appropriate goal and optimal use of spectrum

given the inherent technical and service differences between cellular and the proposed 2 GHz offerings.

GTE believes that the Notice's efforts to drive PCS in the direction of established cellular services is misplaced. Given that new spectrum allocations offer the opportunity to create new offerings based on microcellular technologies, GTE questions whether the better objective would be to foster innovative offerings and new alternatives for consumers. The inexpensive portable handsets envisioned for PCS, for example, will never occur unless PCS licensees are encouraged to create the low-power infrastructure necessary for phone units with small battery capacities. Similarly, the much-vaunted, low-cost service and improved voice quality characteristics of 2 GHz PCS will never materialize absent a microcellular network designed to support high data rate circuit densities greater than cellular service.

The Notice's proposed cellular comparability also ignores technical factors that practically may limit the ability of 2 GHz systems to duplicate cellular in any event. Due to the higher spectrum band, propagation is much more limited and 2 GHz frequencies are more appropriate for microcellular systems. In addition, if cell sizes comparable to cellular are used, the propagation characteristics of the band would require a transmit power from portable units that precludes use of small, long-life batteries and raises health issues. As a result, the 2 GHz band may be best suited to introduce

new offerings with different characteristics than existing services. If the overall telecommunications options for the United States are to be expanded, the Commission must consider whether PCS should be used to promote a vast array of new capabilities rather than attempting to replicate existing mobile services less effectively and efficiently in a higher spectrum band.

3. The Notice fails to address issues associated with cable television entry into PCS.

The Notice also fails to consider any issues implicated by cable television entry into PCS -- much less into the local exchange telephone market generally. Nonetheless, the Commission has explicitly recognized cable television operators as potential PCS entrants, stating "[PCS] can be used through . . . alternative local networks such as cable television systems," id., ¶3. Indeed, the Commission has even granted a cable television company a pioneer's preference for integrating cable and PCS.[14] The Notice's implicit acceptance of cable television entrants as similarly situated with all other entrepreneurial entrants, however, raises substantial policy, equity, and legal issues.

No information, for example, is solicited on whether cable television entry into PCS would violate the cable television/telephone company cross-

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[14] Amendment of the Comm'ns Rules to Establish New Personal Communications Services, FCC 92-467 (Nov. 6, 1992) (awarding Cox Enterprises, Inc. a tentative pioneer's preference for a licensing area encompassing San Diego).

ownership ban in the Communications Act of 1934 (the "Act"). Section 613 of the Act states, in pertinent part:

> It shall be unlawful for any common carrier, subject in whole or in part to Title II of this Act, to provide video programming directly to subscribers in its telephone service area, either directly or indirectly through an affiliate owned by, operated by, controlled by, or under common control with the common carrier.[15]

And, in addition to the legal questions about common ownership of cable television and PCS, Section 613 also places restrictions on use of pole line conduit space that should be considered. Section 613 states, in this regard:

> It shall be unlawful for any common carrier . . . to provide channels of communications or pole line conduit space . . . to any entity which is . . . under common control with such common carrier, if such facilities . . . are to be used for, or in connection with, the provision of video programming directly to subscribers in the telephone service area of the common carrier.[16]

Under the circumstances, GTE believes the Commission should, at a minimum, solicit comment on the implications of these limitations.

Policy questions are also raised by the recent Congressional action to re-regulate cable television.[17] Although the FCC has yet to adopt specific regulations in response to Congressional mandates, the prospect is that cable television companies will become rate regulated for the provision of

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[15] Communications Act of 1934 § 613(b)(1), 47 U.S.C. § 533(b)(1) (1989).

[16] Communications Act of 1934 § 613(b)(2), 47 U.S.C. § 533(b)(2) (1989).

[17] Cable Television Consumer Protection and Competition Act of 1992, Pub. L. No. 102-385 (effective Dec. 4, 1992).

video services. If this were the case, there is a significant question as to whether basic cable subscribers should be required to support cable television company infrastructure that is used to provide PCS.

Private carrier status for PCS, of course, may be one possible way -- albeit a legally questionable avenue -- to circumvent these Section 613 limitations. However, if private carriage is employed, cable operators would be free to deny prospective competitors, resellers, and customers access to their wireless and cable facilities. Clearly, the Commission must consider the implications of the cable infrastructure evolving as separate and distinct from other PCS, LEC, and cellular infrastructures. In particular, the Commission must ask whether the public would be better served if cable operators who also provide PCS are required to provide interconnection with their cable networks like other major service providers and whether they should be required to provide video transport services only as common carriers to unaffiliated programmers.

C. The Role Of Foreign Investment In PCS And Reciprocal United States Companies' Rights Should Be Considered.

As the United States competes in world markets, foreign competitors also want to compete in the United States. GTE supports fair trade. However, with respect to telecommunications, many markets around the world are closed, or limit entry. PCS presents a unique opportunity for the

FCC to analyze the appropriate role that foreign capital should play in the United States market.

The Commission's decision in this proceeding, including the appropriate regulatory classification of PCS (i.e., private or common carriage), will to a great extent determine the amount of foreign investment in United States telecommunications infrastructure. In fact, if PCS is considered to be private carriage, unlimited foreign ownership would ostensibly be permitted, since Section 310(b) of the Communications Act does not apply to carriers not regulated under Title II.[18]

In general, GTE supports foreign investment in United States telecommunications infrastructure where reciprocal rights are afforded. However, many of the large telecommunications providers in the rest of the world are either a direct part of a foreign government, or heavily subsidized by that government as part of that country's infrastructure development plan. When looking at the competition that PCS will bring to the United States telecommunications marketplace, the FCC needs to make a separate analysis of the effects of competition on United States industry from government-subsidized foreign competitors.

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GTE has raised above a number of basic, fundamental questions that should properly be resolved before the Commission commits massive

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[18] 47 U.S.C. § 310(b) (1989).

spectrum resources to PCS. GTE believes the Commission should move deliberately in this area to ensure that PCS systems are launched in a manner that does not inefficiently utilize spectrum resources, complements the existing communications infrastructures, and carefully guards domestic carriers' ability to participate in similar ventures overseas. GTE urges the Commission to consider the ramifications of prematurely committing the country to a regulatory path for future services without an overall plan guaranteeing that the Nation's communications infrastructures remains the best in the world.

III. FCC PCS POLICIES SHOULD PROMOTE FAIR WIRELESS COMPETITION AND DIVERSITY OF SERVICES.

A. Pro-Competitive Mobile Service Policies And A Level Playing Field Benefit The Public.

As its experience with the mobile services has developed, the Commission has evolved rules and policies that "strongly favor and encourage competition."[19] The benefits of these policies have been discussed on numerous occasions and, as experience has shown, "pro-competitive policies further the public interest by facilitating the rapid introduction of new services, the lowering of rates, and increases in the

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[19] Reconsideration of Rules Concerning the Use of Subsidiary Communications Authorization, 55 Rad. Reg. 2d (P & F) 1607, 1614 (1984), rev'd on other grounds California v. FCC, 798 F.2d 1515 (D.C.Cir. 1986).

quality of service."[20] Similarly, Congress has emphasized the importance of competition, stating that "the development of new technologies and the efforts of competitors seeking to respond to consumer demands will bring more service to the public than will administrative regulations."[21]

The Commission now proposes to rely on the competitive delivery of PCS, one of four core values, to create "a strong incentive to offer attractive services and prices," NPRM, ¶94. GTE concurs with the Commission that this approach is the optimum means of ensuring the best possible radio-based service for the public:

> In licensing mobile services, the Commission has squarely placed its faith in competitive markets and service flexibility as the best path to provide greater choice and low prices for consumers -- a faith which has been amply justified by the nationwide availability of cellular service; the competition among cellular providers for customers; the diverse array of service and equipment options; and the aggressive behavior of cellular providers in implementing new technologies such as digital transmission and providing a variety of new services using the cellular spectrum.

Id., ¶2. GTE believes that the Commission's observations about competition in wireless services are apt and well-taken when all parties compete on equal terms. GTE's experience, and that of the cellular industry as a whole, confirms that fair competition ultimately serves the public interest.

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[20] Id.; See also Cellular Communications Systems, 86 F.C.C.2d 469, 474 (1981), modified 89 F.C.C.2d 58 (1982); Multipoint Distribution Service, 45 F.C.C.2d 616, 622 (1974).

[21] Reconsideration of Rules Concerning the Use of Subsidiary Communications Authorization, 55 Rad. Reg. 2d (P & F) at 1614-15 (citations omitted).

However, competition is only one goal of the FCC. The Commission and the public interest should require more than just the competitive delivery of services. There are numerous other federal policies and impacts that must be evaluated in any reasoned decision-making.

B. PCS Policies Should Maximize Competitive Entry Opportunities For New Services.

1. Five segments of licensed spectrum with 20 MHz spectrum blocks should be authorized for PCS.

Consistent with these pro-competitive policies, the Commission should seek to maximize competitive entry opportunities into new Personal Communications Services. While GTE believes the total amount of spectrum required to launch PCS is not yet determined, it will base its discussion on the baseline amount of spectrum proposed in the Notice. After demand is determined, proposals can be scaled up or down accordingly. The Notice recognizes that the optimum means for achieving the "widest range of PCS services at the lowest cost to consumers" would be an allocation "large enough to accommodate all entities interested in providing PCS services," id., ¶34. While spectrum availability provides practical impediments to that prospect, the Commission's tentative conclusion to establish only three allocations seems unduly restrictive.[22] As discussed below, if the FCC is

[22] NPRM, ¶34. The Commission's awareness of "the possible benefits of more competitors," is evidenced by the Commission's solicitation of comments on a greater number of PCS entrants.

considering 100-120 MHz, five blocks of licensed spectrum, each having a planned 20 MHz allocation (both initial and reserve), are technically feasible and there is no good basis for arbitrarily restricting the number of new PCS entrants to only three.

In its Notice, the Commission has tentatively allocated 110 MHz of 2 GHz spectrum for new Personal Communications Services, id., ¶¶35-45. Of this, 20 MHz is committed to unlicensed devices. As one option, 10 MHz of additional spectrum was designated for possible new LEC services. GTE believes that 100 MHz of the 120 MHz of spectrum identified should be divided into five blocks of 20 MHz each to maximize competition in the delivery of licensed PCS.

GTE defers comment on unlicensed spectrum until it has an opportunity to evaluate the proposals of equipment manufacturers and others who support such unlicensed devices.

The FCC has stated a goal of allocating an amount of spectrum for PCS licensees that is at least comparable with cellular. With respect to the PCS segments that would be licensed, using existing technology as a guide, the 1850-1990 MHz band can technically support licensed PCS systems operating with a total of only 20 MHz of spectrum. Cellular carriers, for example, have only 25 MHz of spectrum, and must "accommodate the older

analog mobile units used in cellular today."[23] PCS systems, using digital Code Division Multiple Access ("CDMA") and Time Division Multiple Access ("TDMA") technologies from the outset, could potentially have at least one order of magnitude more capacity than analog cellular systems (i.e., at least ten times current capacity), and should be able to serve commensurably more customers. Existing analog cellular system operators have a large investment in what is now an "older" technology, yet this technology is far from having served its total life cycle. By employing digital technology initially, PCS systems will have a distinct advantage over the older analog cellular systems as well as no obligation -- practical or regulatory -- to serve embedded existing analog handsets. While PCS system providers may initially be required to co-exist with existing 2 GHz incumbents, they will have ample time to buy out or relocate fixed microwave users before the PCS system capacity is unduly constrained.[24] Thus, a 20 MHz allocation would provide a PCS operator with comparability to a cellular operator.[25]

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[23] Id., ¶36. Indeed, cellular carriers were initially authorized only 20 MHz. Cellular Communications Systems, 86 F.C.C.2d at 476 (1981). It was only after the cellular industry was able to demonstrate actual demand to justify more spectrum that the FCC allocated an additional 5 MHz to each carrier. Cellular Communications Systems, FCC 86-333 (July 24, 1986).

[24] Under the Commission's recently announced rules for relocating users in the Emerging Technologies band, PCS licensees will have the option of voluntarily or involuntarily relocating fixed microwave users. Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, FCC 92-437 (Oct. 16, 1992); Erratum (Oct. 29, 1992).

[25] In fact, if CDMA technology is used, comparable capacity may be obtained in far less spectrum. Some proponents of CDMA claim a 10X or 16X improvement in capacity. In its Ex Parte filing regarding Commodity PCS: A Concept for Consideration in GEN Docket No. 90-314, Attachment at 3 (Oct. 21, 1992), US West claims new radio protocols will

This size of allocation can also be tested against other allocation sizes. Enhanced Specialized Mobile Radio ("ESMR") providers are creating viable services with much less than 20 MHz. Fleet Call, for example, has only 14 MHz in its largest market, San Francisco, and claims to be able to accommodate 450,000 subscribers using digital TDMA technology available to PCS providers.[26] Thus, as shown, 20 MHz of bandwidth per licensee can certainly support technically sound and financially viable systems.

Artificially limiting the number of PCS providers to three systems unnecessarily restricts entry opportunities and the potential diversity of new services contrary to two of the stated FCC values: "competitive delivery" and "diversity of service." Licensing additional providers meets the values of "speed of deployment" and "universality." GTE expects that each provider will be rushing to get its service to the market and with many providers constructing systems across the United States, they will offer a wider area of initial service coverage as well as "compete" with one another with ever-expanding service areas after they are established -- the same way

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yield a 20X spectrum capacity increase. This is another reason to consider a phased allocation of spectrum for PCS. Ten megahertz segments could initially be licensed and the balance of the spectrum for that segment held in reserve for that licensee should demand for the reserve spectrum be demonstrated. As a spectrum manager, the FCC should encourage the use of efficient technologies and plan for reallocation if there are shifts in demand or if demand does not materialize.

[26] Analogous to PCS systems, ESMR systems must share spectrum with other co-channel SMR systems and do not have full availability of all channels in all of the service area.

cellular providers compete for customers by offering different service coverage areas.

Although significant amounts of capital will be required to build PCS networks, arguments that the Commission should manage the number of market opportunities to promote the industry's attractiveness to investors are simply outdated and misplaced.[27] Given that viable systems are possible today with 20 MHz or less, at least five segments of licensed PCS spectrum should be authorized at 1850-1990 MHz. "Such an allocation would allow market forces to determine the optimum number of service providers," NPRM, ¶34. In contrast, if too few competitors are authorized, the market cannot create "more" facilities-based competition. Thus, while authorizing "too many" providers is self-correcting, authorizing "too few" is not.

2. PCS service areas should follow the cellular MSA/RSA model.

In order to promote the Commission's paramount goals for PCS -- competitive delivery and diversified services -- GTE recommends conforming PCS service areas to the existing Metropolitan Statistical Areas ("MSA") and

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[27] Kenneth Gordon, Chairman of the Maine Public Utilities Commission and President of the National Association of Regulatory Utility Commissioners, during his portion of a panel discussion on PCS hosted by the Federal Communications Bar Association and Telocator on September 9, 1992, was also not persuaded by the "lack-of-capital" argument. He stated that if an error is to be made, it should be "too many" providers, and not "too few."

Rural Service Areas ("RSA") definitions used in cellular licensing. These smaller service areas create significant entry opportunities for new and diverse services. They also seem well-matched to the realistic technical and market characteristics of future microcellular Personal Communications Services. At 2 GHz, cell site radii are smaller than at 800 MHz at a given power level. The high traffic capacity needs of PCS also push in the direction of small cell sites to increase spectrum re-use and increase the traffic capacity. These technical factors lend support to smaller licensing areas than those proposed by the Commission. Under such circumstances, the proven benefits and administrative convenience of using well-defined and well-understood MSA and RSA service areas significantly outweigh the theoretical concerns identified in the Notice.[28]

Using MSA/RSA service areas for PCS licensing would create entry opportunities for a diverse and large range of potential service providers with different approaches and service concepts. The Notice recognizes that "smaller service areas may permit a broader participation by firms of all sizes in the PCS market," and that "[s]ome potential PCS licensees may be interested in serving only their local areas, including smaller communities

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[28] By starting with smaller license areas, the "market" can determine the optimal consolidation of coverage area desired by customers. If the areas start smaller, they can be aggregated to larger areas as the customers' and market's needs dictate. If larger areas are dictated by regulatory fiat, then there is no mechanism to disaggregate the areas other than some form of "unserved" proceeding sometime well in the future. That approach would allow the spectrum to lie fallow while it was tied up due to the assignment to the initial large area licensee.

that are less economic to serve."[29] In addition, the Notice notes that "[b]roader participation also may produce a greater diversity and degree of technical and service innovation than would be expected from a few large firms," NPRM, ¶59.

In contrast, it is entirely speculative to assume that any benefits will accrue to the public from using larger service areas in PCS licensing.[30] PCS providers will likely focus upon local networks no larger than MSAs/RSAs because of PCS's microcellular characteristics. Indeed, the economics of a microcellular infrastructure may preclude deploying licensed PCS systems outside of the most heavily-populated metropolitan areas for the foreseeable future. Given the differences between microcellular and macrocellular service, it is not evident that the same economies "driving cellular toward larger service areas" exist for PCS, NPRM, ¶58. PCS could even work well in areas smaller than MSA/RSA due to its microcellular characteristics. In contrast, because cellular is primarily a vehicular service today, cellular's cell sites are designed for such fast-moving vehicular customers and should be larger to minimize hand-offs. The cellular cell

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[29] NPRM, ¶59. The Commission further noted that smaller service areas "may minimize certain transaction costs . . . such as subcontracting with other companies to provide service in these smaller cities and communities," id.

[30] Although a nationwide license could offer the benefit of meeting the value of "universality" in that the same handset could be carried and used in different cities across the country, this same result can be obtained with smaller licensing areas, standards, and business arrangements, as has been accomplished in the cellular industry. For terrestrial PCS, concentrating this much spectrum in one party will defeat all the other FCC values, offering less competition, less diversity of service, and a slower speed of deployment since one party could not build as fast as many parties.

footprints are forced to grow smaller due to spectrum limitations and the need to increase traffic capacity.

Finally, the MSA/RSA service areas have the advantage of being known and well-understood markets for wireless services. This administratively simple scheme benefits the FCC, which has already established well-defined boundaries and priorities among markets for licensing.[31] And, use of the MSA/RSA boundaries benefits existing and new providers by simplifying integration of PCS systems with the cellular systems into seamless wireless networks. Customers, both PCS and cellular, will be less confused since they will generally be comparing services licensed on the same geographic basis.[32]

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[31] The MSA/RSA markets, for example, have also been used in licensing Interactive Video and Data Service systems. Interactive Video and Data Services, 7 FCC Rcd 1630, 1638 (1992) ("[T]hese cellular service areas are well known to the communication industry and cover the entire country").

[32] Licensing areas that are large regional areas such as the Rand McNally Major Trading Areas ("MTA") or Local Access and Transport Areas ("LATA") would uniquely benefit parties that have large concentrations of investment and infrastructure within those areas. Thus, these options seem to distinctly advantage the Regional Bell Operating Companies ("RBOC"). In contrast, GTE's and many IXCs' operations are widely spread across the country.

IV. CELLULAR AND TELEPHONE CARRIER PARTICIPATION IN PCS WILL PROMOTE COMPETITION AND EXPANDED SERVICES TO THE PUBLIC.

A. Cellular Carriers Should Have Full Eligibility To Develop And Deploy New And Expanded Personal Communications Services.

GTE believes the Commission's policies should encourage -- rather than restrict -- cellular participation in new Personal Communications Services. Cellular carriers have a demonstrated track record of innovation, performance, and expertise in providing and developing wireless services, NPRM, ¶2. Precluding cellular carriers from obtaining new spectrum would impair the fullest development of PCS without any compelling justification.

1. Cellular carriers have a proven track record of performance and expertise that can increase the benefits of new Personal Communications Services.

In the short time since the service was created, cellular carriers have succeeded in developing the industry far beyond what was originally contemplated. Cellular service is now available to 95 percent of the population.[33] Capacity has also significantly improved in core areas to accommodate over 7.6 million estimated cellular customers at the end of

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[33] Donaldson, Lufkin & Jenrette, The Cellular Communications Industry at 14 (Spring 1992).

1991, a 43 percent increase from the 5.3 million customers at the end of 1990.[34]

Since the beginning of this year, cellular subscribers are being added at a rate of 6,400 every day.[35] Cellular is also no longer a solely vehicular technology -- cellular portables now can be purchased that weigh under 7 ounces. And, cellular carriers have been actively introducing expanded services, including integrated nationwide systems and data services. Cellular has become a truly personal communications service.

Cellular carriers, however, can bring more to PCS than this expertise and experience with mobile services -- they also offer an established wireless infrastructure. Cellular participation in PCS will promote the advent of multiple and highly-competitive local and regional networks when integrated by individual carriers with their established cellular operations. Existing cellular networks can be combined with PCS for more economical, faster, and more innovative deployment of services to the public. In addition, as the Commission has noted, jointly-operating cellular and PCS systems could have "greater production efficiencies . . . to the extent that a single firm holding both a cellular and a PCS license would have lower unit costs than would two firms separately holding each license," NPRM, ¶66.

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[34] Cellular Telecommunications Industry Association ("CTIA"), State of the Cellular Industry at 4 (1992).

[35] Id., at 5.

With their proven record of performance and great potential for deploying wireless services, cellular carriers should be encouraged to participate in new Personal Communications Services. The cellular industry has a great deal to contribute to the development of PCS and the Nation's wireless infrastructure as a whole. Consequently, their involvement in new PCS spectrum opportunities should be promoted rather than precluded.

2. Cellular carriers should be encouraged to participate in new PCS spectrum outside their existing markets.

As an initial matter, any ban on a cellular carrier's participation in new PCS spectrum allocations outside of the carrier's cellular service area would be wholly unjustified. The Commission's sole statement to rationalize restricting cellular eligibility for PCS spectrum is that "cellular operators might limit entry for some period of time by acquiring licenses from potential competitors . . . ." id., ¶64 (emphasis added). Leaving aside the merits of that assumption, there is no reason whatsoever to bar a cellular carrier from participating in areas where the cellular carrier does not already provide service. The Commission has, in fact, stated plainly that "[c]oncerns about competition would not be raised . . . if cellular service providers were to acquire PCS licenses outside their current service areas," id. Accordingly, cellular carriers should be free from any limitations on their pursuit of PCS spectrum outside their cellular service areas.

3. A ban on cellular carrier participation in new PCS spectrum in their cellular service areas would be unwarranted.

GTE also does not believe that a blanket prohibition on cellular carriers participating in new PCS spectrum within their cellular service areas can be justified as serving the public interest. As noted above, the Commission's rationale for qualifying cellular eligibility centers on a perceived potential for limiting competition. However, this rationale applies to all arrangements for providing various forms of PCS discussed in the Notice and, thus, is overly broad and leads to irrational results as illustrated by the following examples.

Cellular participation in unlicensed PCS devices is clearly warranted if there is going to be an allocation for this use. Unlicensed PCS devices will be a separable market and it is unlikely that unlicensed PCS devices will be anything other than complementary to both cellular and PCS systems. The Commission has not, however, explicitly recognized that cellular carriers can and should be allowed to participate in marketing unlicensed systems.

Second, cellular participation in narrowband PCS at 900 MHz is also clearly warranted. The Commission itself has observed that such narrowband systems "will not provide sufficient capacity to compete with existing wireline and cellular networks," id., ¶80, and, thus, an exclusion based upon a competitive rationale cannot be supported. Nonetheless, the Commission is treating the eligibility of cellular carriers in 900 MHz PCS spectrum as an open question.

Third, cellular participation in PCS spectrum is clearly warranted where cellular spectrum is fully utilized. GTE submits that the Notice misperceives the impact upon cellular capacity given the continuing need to offer analog services even following conversion to digital technologies. In a cellular market at or near capacity, the conversion to digital will not free substantial resources unless and until a significant percentage of the analog subscribers can be convinced to switch to digital units. Even postulating a full conversion to digital, significant Advanced Mobile Phone Service ("AMPS") capacity would still be tied up in order to provide roamer service to adjacent markets, which may be substantially farther back in the digital conversion process. Under these circumstances, a cellular carrier would have the same incentives as a non-cellular entrant to aggressively market PCS on 2 GHz frequencies.[36]

Fourth, a ban on cellular participation in PCS spectrum cannot be justified where the overlap in service areas is de minimis. Just as concerns about competition are obviated where there is no service overlap, concerns about competition are limited where only a de minimis overlap exists. Furthermore, given the microcellular nature of PCS, it appears unlikely that terrestrial PCS will be ubiquitously available throughout any entire licensing area for quite some time. Due to the propagation characteristics at 2 GHz,

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[36] In the paging context, for example, the Commission protected against anti-competitive exclusion of competition on newly-authorized mobile spectrum by requiring incumbents "to demonstrate adequate loading on their existing channels." Subsidiary Communications Authorization, 98 F.C.C.2d 792, 802 (1984).

infrastructure costs will be initially justified where small cell radii are required to handle large traffic volumes, such as in in-building applications and to serve dense urban areas. And, because any rational licensing scheme, such as the cellular MSA/RSA market divisions, will avoid splitting the major urban centers between two PCS market areas, and, thus, service will be concentrated in the center of a market, de minimis overlaps are unlikely to create service contour overlaps significant enough to invoke anti-competitive concerns. Accordingly, GTE submits that any prohibition on common ownership must at least provide exceptions for de minimis overlaps.[37]

Fifth, cellular participation in PCS spectrum is clearly warranted where the cellular interests are non-controlling. A passive investor has little opportunity and little or no incentive to engage in anti-competitive conduct. Accordingly, GTE submits that attribution rules should be based on control

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[37] This concern is aggravated if the Commission elects to use local market regions for PCS licensing like the Basic Trading Areas rather than selecting the cellular MSAs and RSAs, and produces irrational results if the Commission uses significantly larger regions like the MTAs. A metric to determine overlaps needs to be created. The obvious choices are square kilometers (or miles) or subscribers covered (or POPs). Since the concern is the competitive impact on subscribers, POPs may be the more logical choice. With ownership attribution rules, overlapped POPs could be distributed to each owner of a portion of a license. Unless the overlapped POPs represented a significant portion of all POPs in the PCS area to be licensed, GTE does not see how any competitive or market power impact could be asserted. In its September 17, 1992 letter to the Chairman of the FCC, American Personal Communications ("APC") suggested a 20 percent ownership of POPs as the benchmark for de minimis overlap. Letter from Wayne N. Schelle, Chairman, APC, to Alfred C.Sikes, Chairman, FCC (Sept. 17, 1992). For minority ownership, APC also suggested an attribution rule to determine POP ownership, id., at 2. APC also suggested that up to a 20 percent ownership in a PCS application should not trigger the bar, id. GTE supports such an approach if the FCC decides to have some classes of potential applicants deemed "ineligible." Such ineligibility should be related to holding the license, and not to applying for the license. If the applicant is actually chosen as the licensee, a reasonable period of time should be allowed to divest facilities down to the de minimis threshold value.